

WHAT IS CLAIMED IS:

1. A take-up cam phase adjustment structure of looper thread take-up apparatus of a sewing machine, the sewing machine comprising a lower driving shaft for driving a lower knotting hook, the looper thread take-up apparatus of the sewing machine comprising:

(a) a rotary shaft pivotally mounted in the sewing machine;

(b) a take-up cam tightly fixed on a second end of the rotary shaft;

(c) a thread-guiding plate mounted on the housing for correspondingly pressing a stitching thread against the rim of the take-up cam; and

(d) a transmission mechanism connected between the lower driving shaft and the rotary shaft, the transmission mechanism comprising a transmission wheel coupled with the lower driving shaft of the sewing machine and a driven wheel coupled with the rotary shaft, the take-up cam phase adjustment structure of the looper thread take-up apparatus of the sewing machine comprising: a first locking member for locking the transmission wheel on the lower driving shaft; a second locking member for locking the driven wheel on the rotary shaft; and a turning section disposed at one end of the rotary shaft, whereby after an operator unscrews and loosens any of the first and second locking members, by means of rotating the turning section, the relative radial positions between the take-up cam and the lower driving shaft is drivingly adjustable.

2. The take-up cam phase adjustment structure of the looper thread take-up apparatus of the sewing machine as claimed in claim 1,

wherein another turning section is further disposed at the other end of the rotary shaft.

3. The take-up cam phase adjustment structure of the looper thread take-up apparatus of the sewing machine as claimed in claim 1, wherein the turning section is a groove.

4. The take-up cam phase adjustment structure of the looper thread take-up apparatus of the sewing machine as claimed in claim 1, wherein the turning section is a protruding plate.

5. A take-up cam phase adjustment structure of looper thread take-up apparatus of a sewing machine, the sewing machine comprising a lower driving shaft for driving a lower knotting hook, the looper thread take-up apparatus of the sewing machine comprising:

- (a) a rotary shaft pivotally mounted in the sewing machine;
- (b) a take-up cam tightly fixed on a second end of the rotary shaft;
- (c) a thread-guiding plate mounted on the housing for correspondingly pressing a stitching thread against the rim of the take-up cam; and
- (d) a transmission mechanism connected between the lower driving shaft and the rotary shaft, the transmission mechanism comprising a transmission wheel coupled with the lower driving shaft of the sewing machine and a driven wheel coupled with the rotary shaft, the take-up cam phase adjustment structure being characterized in that a first end of the rotary shaft outward protrudes from a first sidewall of the housing of the sewing machine, the take-up cam phase adjustment structure of the looper thread take-up apparatus of the

sewing machine comprising: a first locking member for locking the transmission wheel on the lower driving shaft; a second locking member for locking the driven wheel on the rotary shaft; and a turning section disposed at one end of the rotary shaft, whereby after an operator unscrews and loosens the second locking member, by means of rotating the turning section, the relative radial positions between the take-up cam and the lower driving shaft is drivingly adjustable.

6. The take-up cam phase adjustment structure of the looper thread take-up apparatus of the sewing machine as claimed in claim 5, wherein another turning section is further disposed at the other end of the rotary shaft.

7. The take-up cam phase adjustment structure of the looper thread take-up apparatus of the sewing machine as claimed in claim 5, wherein the turning section is a groove.

8. The take-up cam phase adjustment structure of the looper thread take-up apparatus of the sewing machine as claimed in claim 5, wherein the turning section is a protruding plate

9. A take-up cam phase adjustment structure of looper thread take-up apparatus of a sewing machine, the sewing machine comprising a lower driving shaft for driving a lower knotting hook, the looper thread take-up apparatus of the sewing machine comprising:

(a) a rotary shaft pivotally mounted in the sewing machine;

(b) a take-up cam tightly fixed on a second end of the rotary shaft;

(c) a thread-guiding plate mounted on the housing for correspondingly pressing a stitching thread against the rim of the take-

up cam; and

(d) a transmission mechanism connected between the lower driving shaft and the rotary shaft, the transmission mechanism comprising a transmission wheel coupled with the lower driving shaft of the sewing machine and a driven wheel coupled with the rotary shaft, the take-up cam phase adjustment structure being characterized in that the take-up cam phase adjustment structure of the looper thread take-up apparatus of the sewing machine comprising: a locking member for locking the driven wheel on the rotary shaft; and a turning section disposed at one end of the rotary shaft, whereby after an operator unscrews and loosens any of the first and second locking members, by means of rotating the turning section, the relative radial positions between the take-up cam and the lower driving shaft is drivingly adjustable.

10. The take-up cam phase adjustment structure of the looper thread take-up apparatus of the sewing machine as claimed in claim 9, wherein another turning section is further disposed at the other end of the rotary shaft.

11. The take-up cam phase adjustment structure of the looper thread take-up apparatus of the sewing machine as claimed in claim 9, wherein the turning section is a groove.

12. The take-up cam phase adjustment structure of the looper thread take-up apparatus of the sewing machine as claimed in claim 9, wherein the turning section is a protruding plate.